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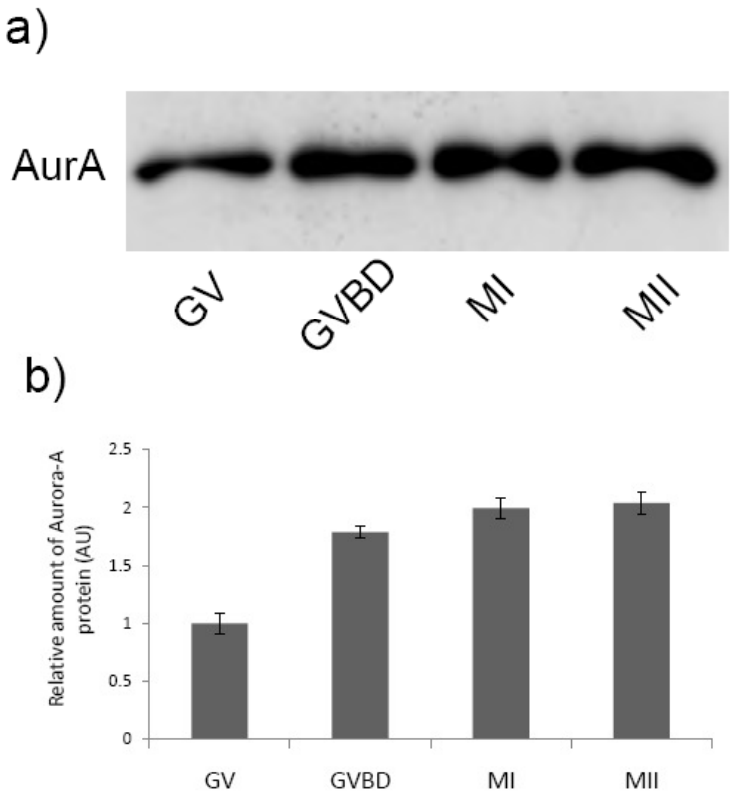
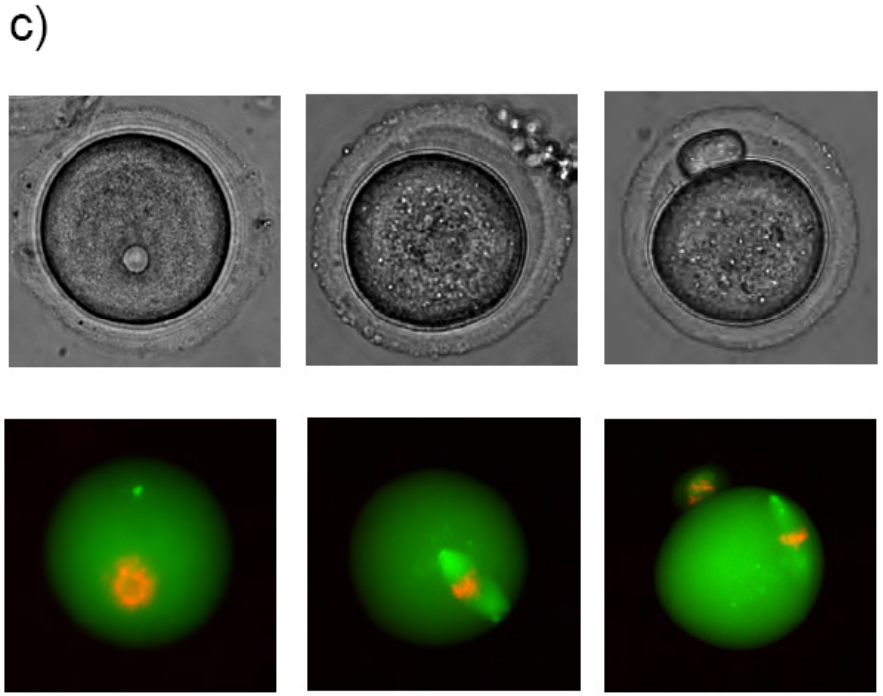
AURKA controls important events at meiosis I of mouse oocytes

Jan Motlík

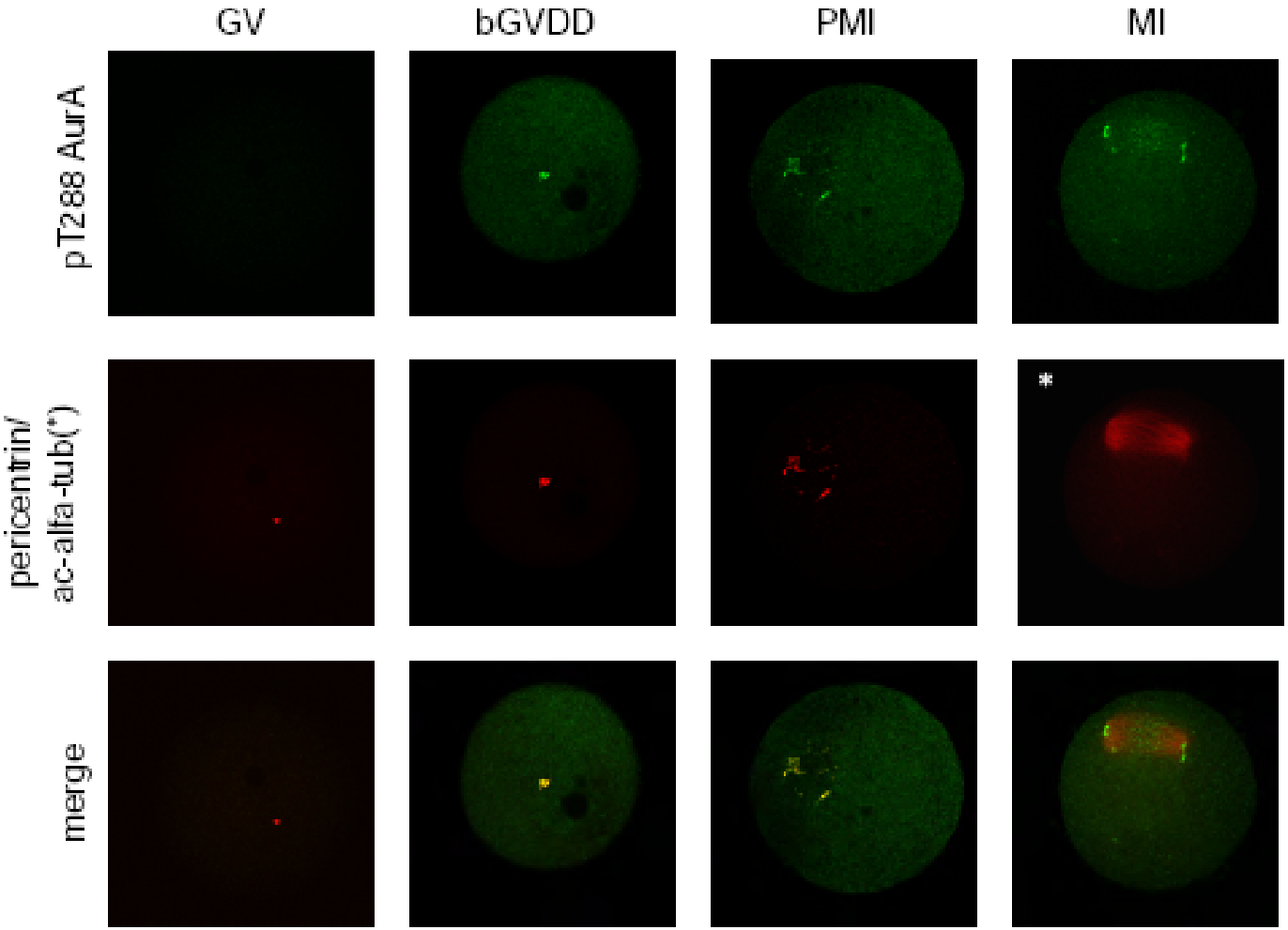
Aurora-A kinase associates with MTOCs and spindle during meiotic maturation





Activation of Aurora-A precedes GVBD during meiotic maturation both in vitro and in vivo

In vitro maturation



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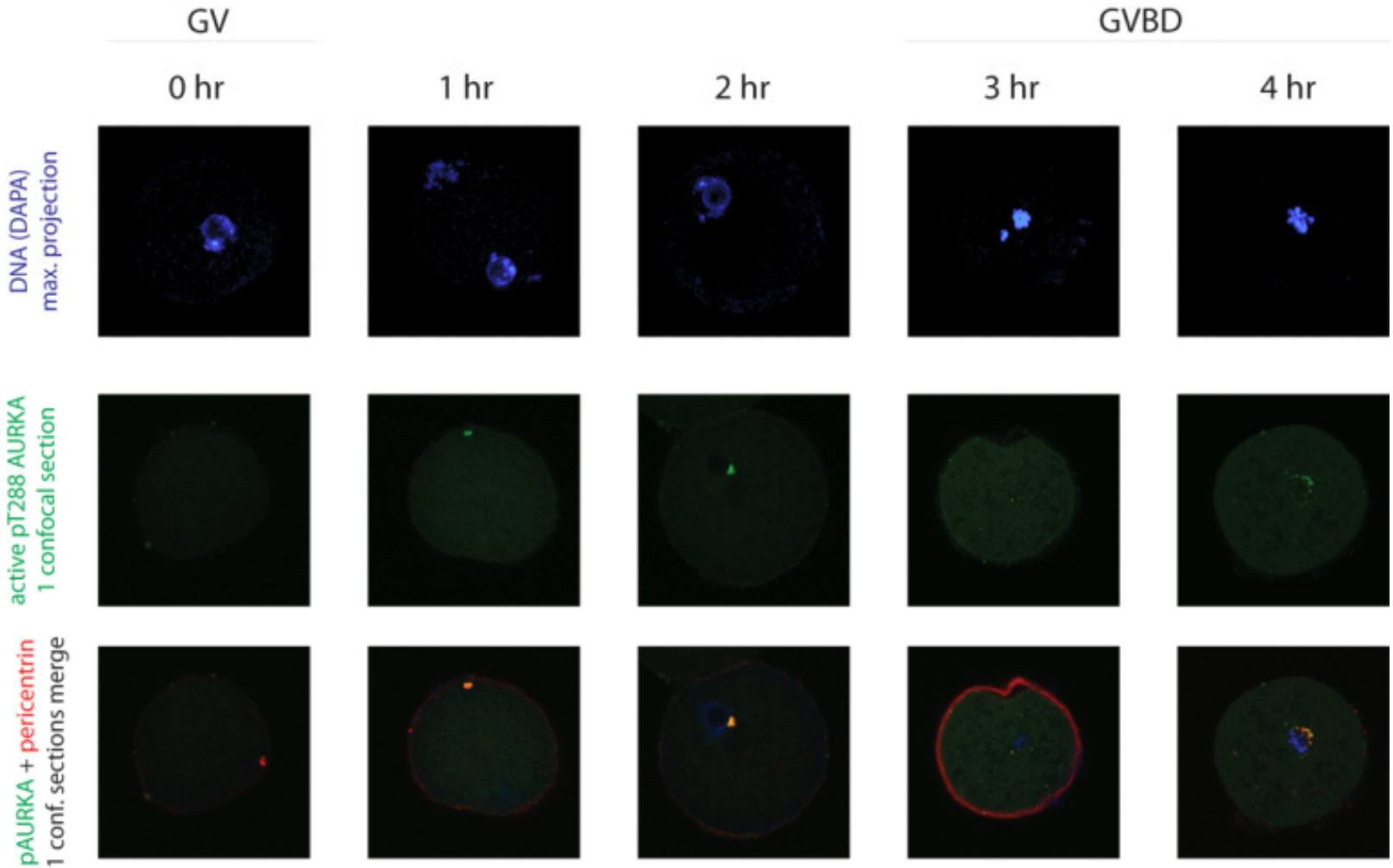
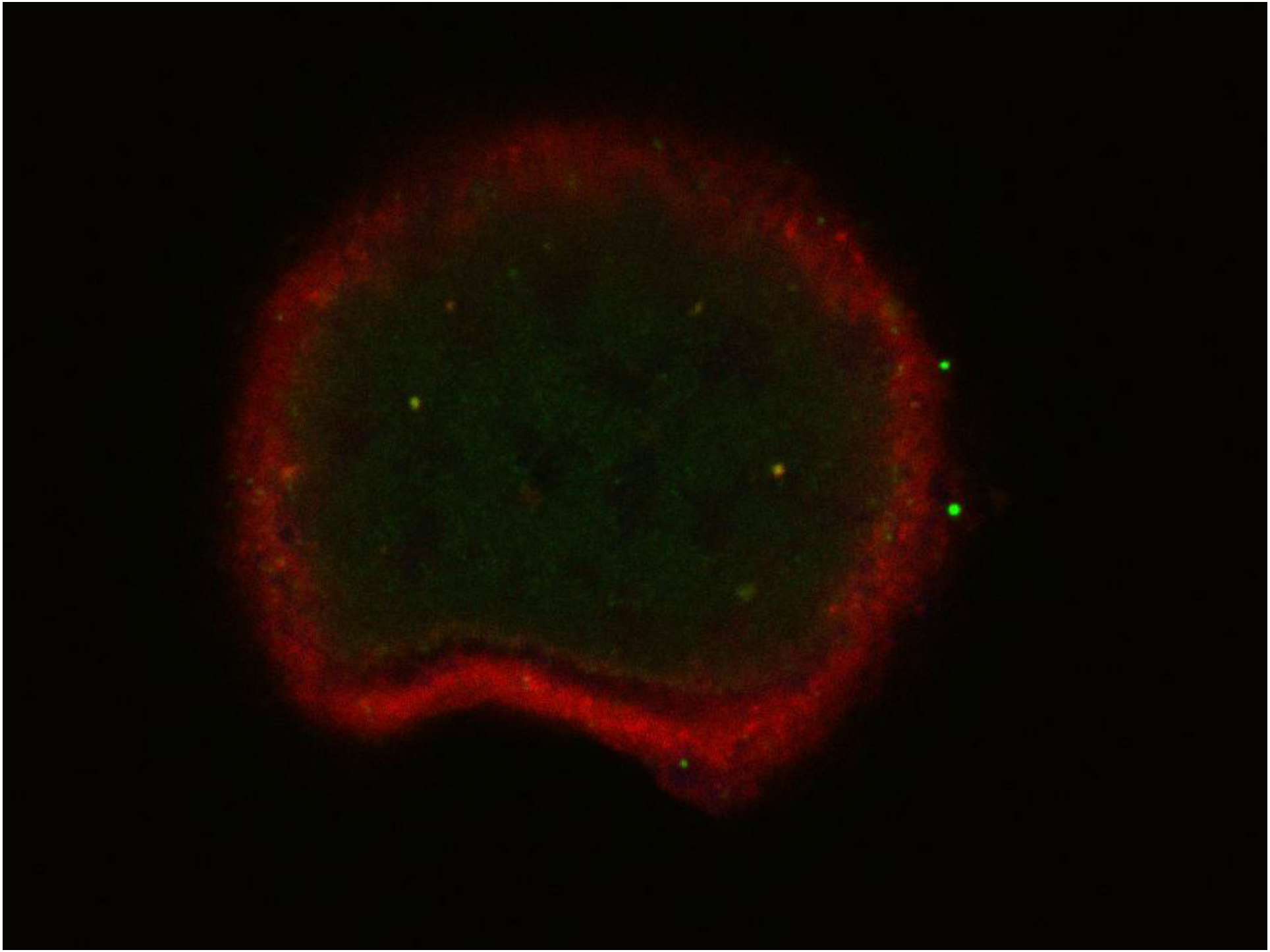
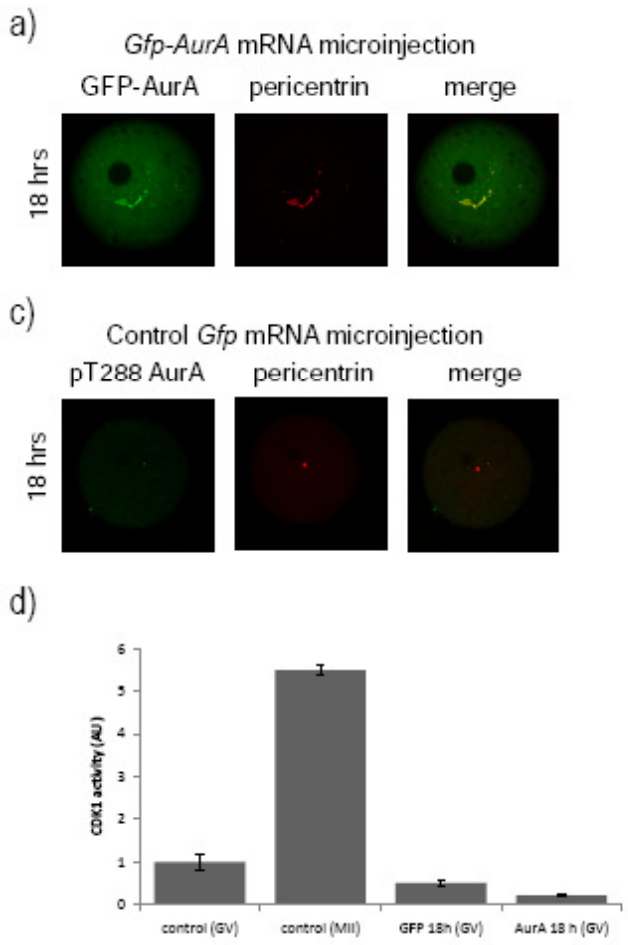
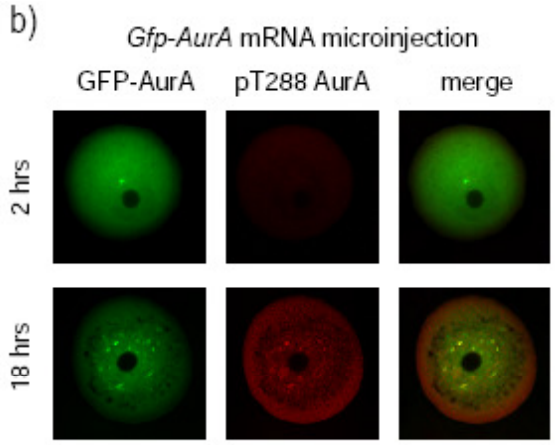




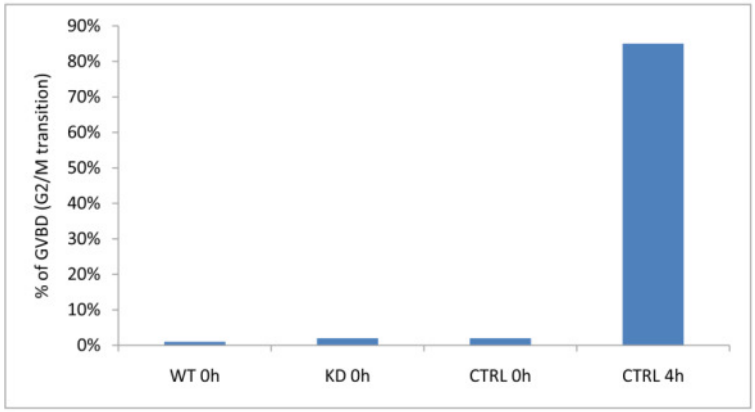
Exogenous Aurora-A is not sufficient to induce GVBD, but it induces MTOCs multiplication in the absence of CDK activity in GV-arrested oocytes



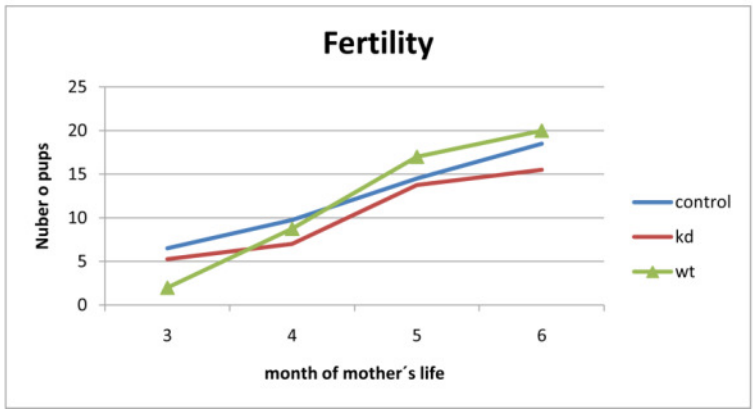


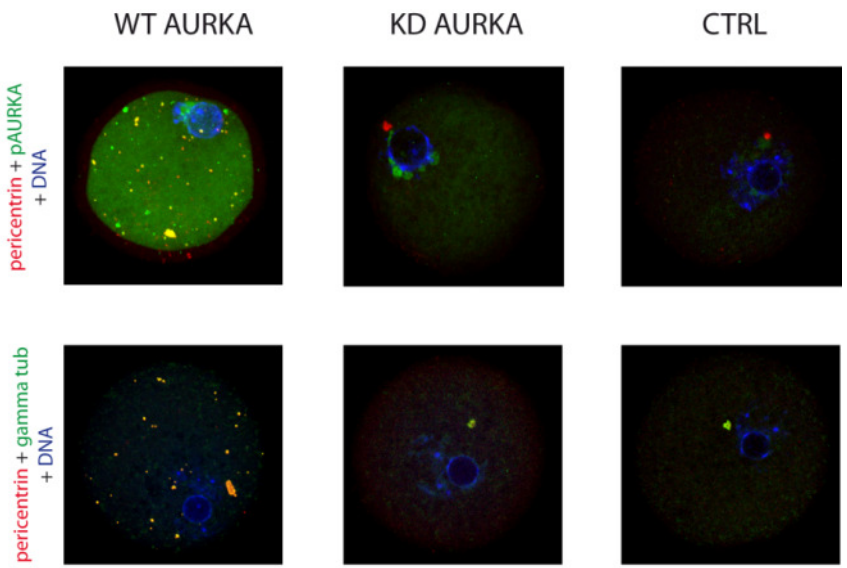
Transgenic overexpression of AURKA specifically in oocytes is not sufficient to induce GVBD but it triggers MTOCs multiplication

A) WT AURKA *per se* does not induces G2/M transition



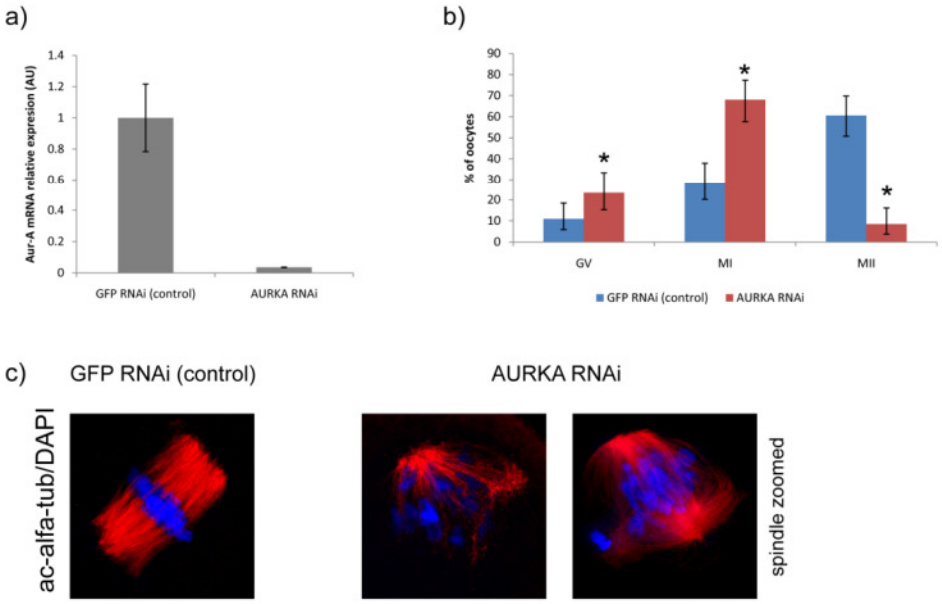
B) WT AURKA and KD AURKA transgenic mice are normaly fertile



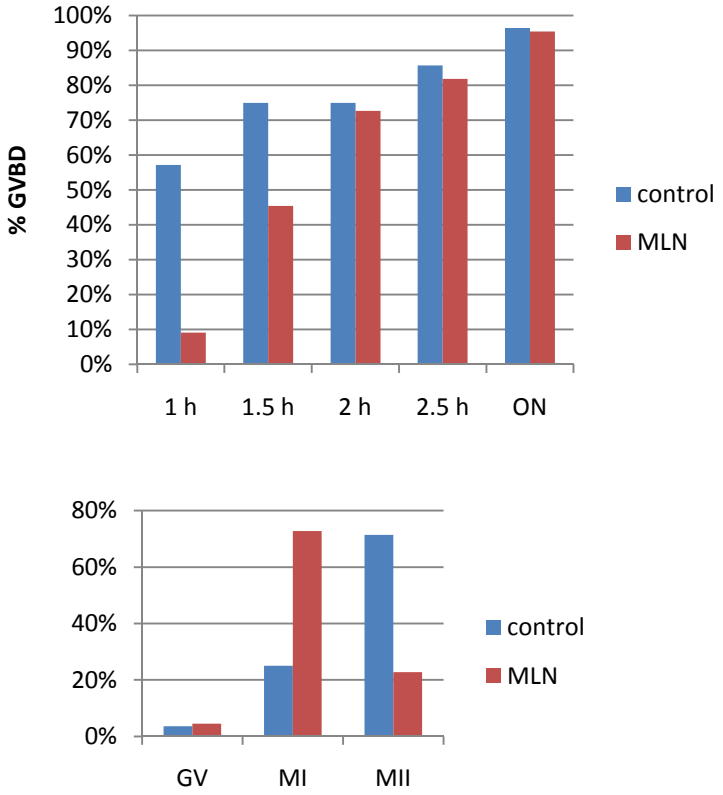


RNAi mediated and pharmacological inhibition of AURKA during in vitro maturation

RNA interference



Pharmacological inhibition



Conclusions

- AURKA is activated very early during resumption of meiosis
- AURKA is not a trigger signal for GVBD but it is involved in the timing of GVBD
- AURKA triggers MTOCs biogenesis (multiplication)
- AURKA is important for correct spindle assembly

Coworkers

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- Adela Saskova
- Vladimir Baran (Slovak Academy of Sciences)
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- Richard Schultz (University of Pennsylvaniaa)